

EPO - DG 1

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CLAIMS

(72)

1. A diaphragm pump for pumping aggressive and/or abrasive media, such as slurries, comprising a diaphragm housing (29) mounted in a substantially vertically disposed pipe system (40), which substantially vertically disposed pipe system comprises at least one inlet (40a) and at least one outlet (40b) positioned some distance above the inlet, as well as at least one substantially circular, flexible diaphragm (25) having a circular outer edge (25a), which diaphragm is movable within the diaphragm housing under the influence of a working liquid (24) that can be pressurised, with the circular outer edge (25a) of the diaphragm being clamped down in the diaphragm housing by means of a circular clamping member (29a), wherein said clamping member (29a) defines a (circular) plane, characterized in that the circular clamping member is provided, on its the circumferential edge (29a') thereof, with a flange (50) that extends parallel to the plane formed by the clamping member.
2. A diaphragm pump according to claim 1, characterized in that the circular clamping member (29a) is provided with said projecting flange (50) substantially at the location of the outlet (40b) of the pipe system (40).
3. A diaphragm pump according to claim 1 or 2, characterized in that the projecting flange (50) is provided along the upper half of the circumferential edge (29a') of the clamping member (29a).
4. A diaphragm pump according to claim 3, characterized in that the length of the projecting flange (50) varies along the upper half of the circumferential edge (29a').
5. A diaphragm pump according to claim 4, characterized in that the length of the projecting flange (50) is greatest near the outlet (40b).
6. A diaphragm pump according to claim 4 or 5, characterized in that the length of the projecting flange (50) substantially equals

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zero in the middle of the circumferential edge (29a'), in particular up to about 30° below the middle of the circumferential edge.

7. A diaphragm pump according to any one of the preceding claims, characterized in that the end edge (50a) of the projecting flange (50) is curved.

8. A diaphragm pump according to claim 7, characterized in that the radius (R) of curvature of the end edge (50a) is approximately equal to the thickness of the diaphragm (25).

9. A diaphragm pump according to claim 7 or 8, characterized in that the curvature of the end edge (50a) is proportional to the counter curvature of the preformed diaphragm (25).

10. A diaphragm pump according to any one or more of the claims 7-9, characterized in that the radius of curvature of the end edge (50a) ranges from 8 to 80 mm.

11. A diaphragm pump according to claim 10, characterized in that the curvature of the end edge (50a) extends accordance to a second or higher degree polynomial.

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